

## CLAIMS

## WHAT IS CLAIMED IS:

5 A composition for protecting and preserving an organ, a  
tissue, or a cell, comprising a polyphenol.

2. The composition according to Claim 1, wherein the  
polyphenol is present in an amount sufficient for  
10 preservation of the organ, tissue or cell during  
ischemia or reperfusion.

3. The composition according to Claim 2, wherein the  
ischemia and reperfusion arises in surgery or medical  
15 operation.

4. The composition according to Claim 1, wherein the  
preservation is for operation, and the polyphenol is  
administered during the time from pre-operation to  
20 post-reperfusion.

5. The composition according to Claim 4, wherein the  
administration is administered at a time from at least  
25 two weeks before an operation to the date of the  
operation.

6. The composition according to Claim 4, wherein the  
administration is administered at least at the time of  
30 ischemia.

7. The composition according to Claim 4, wherein the  
administration is performed at least on reperfusion.

8. The composition according to Claim 4, wherein the administration is performed at least after reperfusion.
- 5 9. The composition according to Claim 4, wherein the administration is performed orally or parenterally.
10. The composition according to Claim 4, wherein the operation is surgical or internally.
- 10 11. The composition according to Claim 10, wherein the operation is surgical.
12. The composition according to Claim 11, wherein the surgical operation uses off-pump, PCI, catheter intervention or extracorporeal circulation.
- 15 13. The composition according to Claim 11, wherein the surgical operation is an operation of aorta, arteries coronaria or valve.
- 20 14. The composition according to Claim 1, wherein the organ, tissue or cell is an organ.
- 25 15. The composition according to Claim 1, wherein the organ comprises the skin, blood vessels, cornea, kidney, heart, liver, umbilical cord, intestine, nerve, lung, placenta, or pancreas.
- 30 16. The composition according to Claim 1, wherein the organ is selected from the group consisting of the heart, brain, nerve and spinal cord.

17. The composition according to Claim 1, wherein the organ, tissue or cell is mammalian.

18. The composition according to Claim 1, wherein the  
5 organ, tissue or cell is human.

19. The composition according to Claim 1, which is a protective agent for the organ, tissue or cell.

10 20. The composition according to Claim 19, wherein the protection comprises protection in ischemia.

21. The composition according to Claim 1, which is a preservation agent for the organ, tissue or cell.

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22. The composition according to Claim 1, wherein the polyphenol is a mixture or a single component.

23. The composition according to Claim 1, wherein the  
20 polyphenol is a catechin, tannin, proanthocyanidine, or resveratrol.

24. The composition according to Claim 1, wherein the polyphenol comprises at least catechins or tannins.

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25. The composition according to Claim 1, wherein the polyphenol comprises epigallocatechingallate.

26. The composition according to Claim 1, wherein the  
30 polyphenol has a hydroxy value of about 2 to about 100.

27. The composition according to Claim 1, wherein the polyphenol comprises an extract selected from the group

consisting of tea extract, seaweed extract, aloe extract, wine extract, cactus extract and fruit extract.

28. The composition according to Claim 1 wherein the  
5 polyphenol comprises seaweed extract.

29. The composition according to Claim 1, wherein the polyphenol comprises tea extract.

10 30. A method for protecting an organ, tissue or cell in a subject, comprising:

1) exposing the organ, tissue or cell to a polyphenol.

15 31. The method according to Claim 30, wherein the polyphenol is administered to the subject in an amount effective for protecting the organ, tissue or cell, during ischemia or reperfusion.

20 32. The method according to Claim 30, wherein the protection is performed at operation.

33. The method according to Claim 30, wherein the operation is surgical or internal.

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34. The method according to Claim 32, wherein the polyphenol is administered to the subject at any period of time from pre-operation to reperfusion.

30 35. The method according to Claim 34, wherein the administration is performed at any time point from at least two weeks before operation to the date of operation.

36. The method according to Claim 34, wherein the administration is performed at least at ischemia.

5 37. The method according to Claim 34, wherein the administration is performed at least at reperfusion.

38. The method according to Claim 34, wherein the administration is performed at least after reperfusion.

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39. The method according to Claim 34, wherein the administration is performed orally or parenterally.

15 40. The method according to Claim 32, wherein the operation is surgical.

41. The method according to Claim 32, wherein the surgical operation uses off-pump, PCI, catheter intervention or extracorporeal circulation.

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42. The method according to Claim 40, wherein the surgery operation is an operation on the aorta, arteria coronaria or valve.

25 43. The method according to Claim 30, wherein the organ, tissue or cell is an organ.

44. The method according to Claim 30, wherein the organ comprises the skin, blood vessels, cornea, kidney, heart, liver, umbilical cord, intestine, nerve, lung, placenta, or pancreas.

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45. The method according to Claim 30, wherein the organ is selected from the group consisting of the heart, brain, nerve and spinal cord.

5 46. The method according to Claim 30, wherein the organ, tissue or cell is mammalian.

47. The method according to Claim 30, wherein the organ, tissue or cell is human.

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48. The method according to Claim 30, wherein the protection comprises protection during ischemia.

15 49. The method according to Claim 30, wherein the protection comprises protection at reperfusion.

50. The method according to Claim 30, wherein the polyphenol is a mixture or a single component.

20 51. The method according to Claim 30, wherein the polyphenol is a catechin, tannin, proanthocyanidine, or resveratrol.

25 52. The method according to Claim 30, wherein the polyphenol comprises at least catechins or tannins.

53. The method according to Claim 30, wherein the polyphenol comprises epigallocatechingallate.

30 54. The method according to Claim 30, wherein the polyphenol has a hydroxy value of about 2 to about 100.

55. The method according to Claim 30, wherein the polyphenol comprises an extract selected from the group consisting of tea extract, seaweed extract, aloe extract, wine extract, cactus extract and fruit extract.
- 5 56. The method according to Claim 30, wherein the polyphenol comprises seaweed extract.
57. The method according to Claim 30, wherein the  
10 polyphenol comprises tea extract.
58. A method for preserving an organ, tissue or cell, comprising the step of:  
1) retaining the organ, tissue or cell in a fluid  
15 comprising a polyphenol.
59. The method according to Claim 58, wherein the organ is the heart.
- 20 60. Use of polyphenol in manufacturing a medicament for protecting or preserving an organ, tissue or cell, wherein the medicament comprises the polyphenol.